Remarks

I. Introduction

It is respectfully requested that this Amendment After Final Rejection be entered and made of record. It is believed that the following amendments and remarks place the application in a form for allowance. The following amendments and remarks at least place the claims in a better form for appeal. No new matter is presented, as such the amendment is proper under 37 C.F.R. § 1.116.

Applicants have now amended claim 1 to remove the term "water soluble" since this terminology does not accurately describe their complexes. No new matter has been added. Since the claim now simply explicitly sets forth an inherent property of the compounds, the amendment is not narrowing.

II. Claim Rejections - 35 U.S.C. § 103(a)

As noted in Applicants' last response, claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over Cardinal, U.S. Pat. No. 2,849,468 on the basis that if a skilled artisan in the art had desired to produce a 1:1 neutral complex of zinc and glutamic acid different from the 1:1.5 neutral complex from Example III of the prior art, such artisan it would have been motivated to produce such a complex selectively and substantially as an alternative by using the teachings of the Cardinal reference because glutamic salt is in demand for the purpose of flavor enhancement. The Examiner further argues that the skilled artisan would expect the formation of the 1:1 neutral complex of zinc and glutamic acid to be successful as the guidance (see col. 4, lines 4-7) shown in the prior art. Applicants respectfully traverse this rejection.

The Examiner's assertion that Cardinal provides guidance to produce Applicants' 1:1 neutral complexes appears to be based on an incorrect interpretation of Cardinal. The purpose of Cardinal is to precipitate the maximum amount of glutamic acid from its solution and to prepare specific zinc salts of glutamic acid. (See e.g. Col. 2, lines 43-45). In fact, Cardinal states that, "[t]he exact chemical formula for these zinc glutamate salts prepared in accordance with the instance process is not definitely known." (Col. 4, lines 17-19). It is not understood how it would have been obvious to have prepared Applicants' 1:1 complexes, which the Examiner admits are novel, based on the teachings of a reference that was unaware of the actual chemical structure of its own disclosed compositions.

Further, contrary to the Examiner's assertion, Cardinal does not disclose that his salt has 1-2 moles of zinc per mole of glutamic acid. Upon careful reading of the reference, persons skilled in the art would readily appreciate that Cardinal is instead stating that 1-2 molar equivalent of a zinc salt was added in order to precipitate the glutamic acid. (Col. 3 lines 71-75 to Col. 4 lines 1-7). In this regard, Cardinal notes that while between 1 and 2 molar equivalents of zinc were required to precipitate pure glutamic acid from solution, 8-10 molar equivalents of zinc were required to precipitate the same glutamic acid from, "Steffen's filtrate hydrolysate end liquors containing generally between 1.5% and about 2.5% glutamic acid concentration." (Col. 3 line 75 to Col. 4 lines 1-7). This focus on maximizing the precipitation of glutamic acid is demonstrated throughout the specification and examples (see e.g. Example II, "The zinc magnesium glutamate product weighed about 46.9 grams, and precipitation was about 98.8 complete.").

In contrast, the purpose of the present invention was to provide complexes of trace elements having commercial utility that are superior to currently available products. This required the identification of desirable chemical, physical and nutritional properties. Based on these requirements, the present inventors designed and prepared potential complexes, determined their physical and chemical properties, and selected those complexes that possessed the desired properties, i.e. enhanced bioavailability. Complexes demonstrating superior bioavailability in animal studies were further evaluated for improving the performance of livestock. (See Spec. pp. 7-8).

Thus, the claimed 1:1 neutral complexes of this invention were discovered only after a multi-step, deliberate process to synthesize and select those with the desired properties of improved bioavailability, higher metal content, excellent physical properties making them easier to manufacture, ship, store, and blend into feed, stability, and the ability to obtain the products at low cost. (Spec. p. 8). The novel features of the invention include novel 1:1 neutral complexes of known structure that can be duplicated in high yields, evidence of their unique chemical, physical, and biological properties, and the use of such compounds in improving the performance of livestock, thus demonstrating their commercial utility. The Examiner's argument that a person skilled in the art would have arrived at the claimed complexes of this application and their novel features in view of the general disclosure of Cardinal relating to the precipitation of zinc salts of

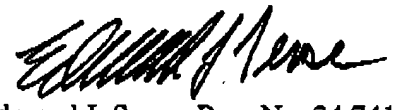
glutamic acid of unknown chemical structure is not legally supported. Claim 1 is therefore not rendered obvious by Cardinal and Applicants respectfully request that this ground of rejection be withdrawn.

III. Conclusion

It is believed the application is in a prima facie condition for allowance. Allowance is therefore respectfully requested.

It is not believed any fees or extensions of time are due in connection with amendment. If this is incorrect, please consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Respectfully submitted,



Edmund J. Sease, Reg. No. 24,741
McKEE, VOORHEES & SEASE
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No. (515) 288-3667
Fax No. (515) 288-1338
CUSTOMER NO: 22885

Attorneys of Record

- wm -